Before the
Federal Communications Commission
Washington, D.C. 20554

In the matter of	)	
	)	
Federal-State Joint Board on	)	
Universal Service	)	CC Docket No. 96-45
	)	
	)	
	)	

Petition for Reconsideration

I. Introduction

The Maine Public Utilities Commission and the Vermont Public Service Board (Petitioners), request that the Federal Communications Commission reconsider its Order and Order on Reconsideration (DA 01-2928) (the 2002 Order) adopted and released on December 18, 2001, and published in the Federal Register on January 23, 2002. The Commission should alter the 2002 Order so that nonrural carriers receive As universal service support in 2002 the greater of the amount announced for 2002 or the amount actually distributed in 2000.

The Commission should grant reconsideration because, in the 2002 Order, the Commission did not adequately explain the basis for its rule (as required by 5 U.S.C. § 553), and did not justify its departure from prior practices or from the original Notice. The Commission should grant reconsideration for the additional reasons that the 2002 Order erroneously relies upon implausible, unreliable and invalid data, upon flawed procedures for preparing data input to the commission's computer model, and upon apparent processing errors within the model itself. Thus reconsideration is necessary in order to allow the Commission to adequately explain the basis for its rule, to explain the change from prior policies and the change from the original Notice, to correct the reliance upon inappropriate and inconsistent data, and to fulfill its obligations under 47 U.S.C. § 254(b) and (e).

As a result of the line count changes mandated by the 2002 Order, as well as the methodology that the Commission has used to process that data, the petitioners will lose in 2002 substantial federal universal service support. This is shown in the following table.[1]

Year	Verizon-Maine	Verizon-Vermont
2000	$11,196,111	$15,292,347
2002	$5,453,035	$9,089,414

These changes directly and adversely affect customers in Petitioners' states by up to close to $20 per customer per year since, in Maine and Vermont, all federal support to nonrural carriers is

[1] Year 2000 data is based upon USAC 2000 Annual Report.
Year 2001 data is based upon Monitoring Report of November, 2001.
Year 2002 estimates are based upon recent USAC published numbers, rather than the numbers published by the Commission on December 18, 2001. The differences are less than $100,000 in both cases. We have used the most recent data because the 2002 Order did not itself prescribe support amounts, but only methods to calculate those amounts.

directly flowed through to customers.

In the 2002 Order, the Commission failed to indicate the factual and conceptual bases that lead to the resulting support decreases, as required by 5 U.S.C. § 553. Petitioners therefore then began an informal investigation concerning the reasons for their loss of support. Based upon that investigation, Petitioners assert, on information and belief,[2] that the support reductions flowing from the 2002 Order were based on unreliable and invalid special access line count data, relied upon invalid combinations of incompatible data sets, and provided data to the Synthesis Cost Model (on which support is based) that is incompatible with the model itself. Ultimately, of course, the duty of explaining the process from concept to result lies with the Commission itself and the 2002 Order requires further consideration and explanation to meet that obligation.

II. The 2002 Order and it's Notice

The Commission adopted the prior details of its universal service policy for nonrural carriers in two November, 1999 orders, the *Ninth Report and Order*[3] concerning the distribution mechanism and the *Tenth Report and Order*[4] concerning the details of the cost model. In the

[2] All of the following analysis is based upon the best information the Petitioners have been able to obtain to date, and the statements are based upon our best understanding of what has occurred. Information access has been limited in many cases, however, chiefly because Petitioners do not have the power to fully investigate the reliability of data submitted by companies not operating in their states.

[3] *In re Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Ninth Report and Order and Eighteenth Order on Reconsideration, FCC 99-306, released Nov. 2, 1999 (subsequent history omitted).

[4] *In re Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Tenth Report and Order, FCC 99-

Tenth Order, the Commission determined that it would use a purchased data set for line counts, the so-called "PNR" data.[5] This methodology was used in 2000.

The 2002 Order was preceded by a Notice, issued in September, 2001 (Notice).[6] In the Notice the Commission sought in extremely general and non-specific terms, comment on whether to update line counts for the 2002 support distribution. Regarding special access lines, the Notice asked only the following:

304, released Nov. 2, 1999 (subsequent history omitted).

[5] *Id.,* para. 61.

[6] *Common Carrier Bureau Seeks Comment on Updating Line Counts and Other Limited Information Used in Calculating High-Cost Universal Service Support for Non-rural Carriers for 2002*, CC Docket No. 96-45, Public Notice, DA 01-2107 (rel. Sept. 11, 2001) (*2002 Line Counts Update Public Notice*).

> Because line counts reported by non-rural carriers include only switched lines, we also seek comment on whether to divide the 2000 ARMIS special lines access lines among wire centers in the same proportion as the special lines from the *1999 Data Request* to estimate special line count growth. Finally, we seek comment on whether to apply the method adopted in the [2001] *Line Counts Update Order* for matching line count data to wire centers used in the model for calculating support in 2002.[7]

The 2002 Order defined the line count data that are to be used as model inputs in calculating universal service support for nonrural carriers in 2002. The 2002 Order asserts that updating line counts would ensure that the model accounts for changes in costs due to changes in line counts. The 2002 Order offered the following rationale for its decision regarding special access line counts:

> Because line counts reported by non-rural carriers include only switched lines, the Bureau recognized in the 2001 Line Counts Update Order that it could not divide year-end line counts into the data provided by the 1999 Data Request to determine the growth rate of special lines. As a result, the Bureau instead decided to divide the 1999 ARMIS special access lines among wire centers in the same proportion as the special lines from the 1999 Data Request to estimate line count growth. We find that this methodology continues to be a reasonable approach to estimating special line growth for calculating support for 2002.[8]

These new data inputs go well beyond the suggestions outlined in Notice, and it is their reliability and validity, as well as the manner in which the Commission has put them to use, that Petitioners challenge here.

III. Legal Duties of the Commission

The 2002 Order is a necessary part of the Commissions obligations to comply with the

[7] *Id.*

[8] *Order*, para. 14.

substantive universal service support requirements that Congress established in the Telecommunications Act of 1996. The Order must also comply with the procedural requirements of the Administrative Procedures Act.

Section 254 of the Telecommunications Act of 1996 requires the Commission to provide sufficient support to Petitioners' nonrural carriers so that rates in rural areas are affordable and are reasonably comparable to rates in urban areas.[9] Unfortunately, the results of the 2002 Order are implausible because they are internally contradictory and, thus, do not justify the 2002 Order's allocation of "sufficient" support, as required under Section 254 of the Act. Accordingly, the Commission should reconsider the Order and modify its terms to bring it into compliance with the substantive requirements of Section 254.

Reconsideration is also appropriate to allow the Commission to meet its procedural obligations. First, Section 553 of the Administrative Procedures Act requires a statement of the 2002 Order's "*basis and purpose*."

Second, when the Commission changes its policy (or methodology), it must explain how and why. When the Commission acts in a way that significantly changes its earlier decisions it must articulate an explanation that will account for both the earlier and the most recent actions it has taken.[10] The content of the explanation must afford the public a full and meaningful opportunity to comment.

Third, that explanation must be plausible and must include "a rational connection between the facts found and the choice made."[11]

Fourth, it is well settled that an agency notice of a proposed rulemaking must include sufficient background to appraise affected parties of the intent and rationale for the proposed

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[9] 47 U.S.C. § 254(b)(1), (b)(3), (e); *see Qwest v. FCC*, 258 F.3d 1191 (10th Cir. 2001).

[10] *Motor Vehicle Mfrs. Assn. V. State Farm Mut.,* 463 U.S. 29, 103 (1983); *Illinois State Chamber of Commerce v. Environmental Protection Agency*, 775 F.2d 1141, 1147 (7th Cir. 1985); *National Association for the Advancement of Colored People, Jefferson County, v. Donovan*, 765 F.2d 1178, 1184 (D.C.Cir. 1985); *Assoc. of Public Safety Communications Officials, Int'l, Inc. v. Federal Communications Commission*, 76 F.3d 395 (D.C.Cir. 1996).

[11] *Motor Vehicle Mfrs. Assn. (Supra) at 43, quoting Burlington Truck Lines v. United States, 371 U.S. 156, 168 (1962).*

action as well as its "logical outgrowths."[12] The Commission must explain any empirical assumptions in advance and allow them to be subjected to the give and take of notice and comment.[13]

[12] *See*, e.g. *Fertilizer Institute v. EPA*, 935 F.2d 1303 (D.C.Cir. 1991).

[13] *Illinois State Chamber* (supra.) at 1151.

Finally, a full and complete agency decision is important to provide a basis for meaningful judicial review.[14]

The 2002 Order as it stands fails to comply with these fundamental procedural requirements. The 2002 Order fails to identify, explain, or justify the Commission's departure from its previous methodology for calculating universal support levels. The Order's use of contradictory data precludes any plausible connection between the facts and the Commission's determination. The Notice failed to inform interested persons that the Commission would use inappropriate and unreliable data, and the Notice incorrectly identified the computer model that would be applied to those data. Accordingly, the Commission should reconsider the Order and correct its fundamental procedural flaws.

IV. Reconsideration To Address Data, Modeling In Notice Deficiencies

For several reasons, Petitioners did not participate or file comments in response to the Notice. Most importantly, key concerns now identified by Petitioners were not known, nor could they have been known, until after the 2002 Order was issued on December 18, 2001. In addition, the 2002 Order is so flawed that, apart from Petitioners' right to be heard here, the Commission should *sua sponte* grant the relief requested.

[14] *Motor Vehicle Mfrs. Assn.*, supra

The Notice did not state -- and real-world conditions gave Petitioners no reason to expect -- that updated special access line counts would increase dramatically for Maine and Vermont in the 2002 support year. Yet, solely for *definitional* reasons related to the 2000 ARMIS report and outside the scope of the Notice here, digital special access line counts more than doubled in Vermont and in Maine.[15] Indeed, Verizon has informed Petitioners that, but for the changed definition in the 2000 ARMIS report, special access line counts in Vermont and Maine would have *decreased* in 2002. In Maine the contrast is particularly stark. Under unchanged reporting requirements, Verizon would have reported a 26 percent decrease in special access in Maine. Instead, with the reporting change, Verizon reported a 145 percent increase, the largest increase of any Verizon state. In Vermont, the result is only slightly less extreme. Constant reporting definitions would have produced a reported showing a special access line count decrease of 12 percent. Instead, the actual filing shows an increase of 122 percent.

Likewise, the Notice did not state, and Petitioners had no reason to expect, that routine updating of line counts would substantially reduce the support available for Verizon customers in their states. Maine's support under the 2002 Order would decrease by almost 40 percent in this single year, with a similar effect over a two-year period for Vermont. Nothing in the Notice suggested that substantial reductions might flow from what purported to be routine updating of line counts.

Moreover, the Notice did not allow Petitioners to estimate the effect of increased special access line counts because of the Commission's proprietary treatment of critical data. The Commission did not make available at the time of the Notice the line count data needed to estimate the likely impact of the new data, as fed into the Synthesis Cost Model. Indeed, Petitioners were unable to run the model on their own computers until some time after the Notice, and only then because they repeatedly requested that the Commission provide the critical line count data.

[15] The problems described here are far more significant than in 2001, because of significantly increased special access line counts in Petitioners' study areas.

Petitioners did finally attain the ability to run the computer model on their own computers with current data. However, the Commission then provided them with a computer model other than what was adopted in the 2002 Order. The Commission had previously indicated that it would be abandoning the current version of the Synthesis Model in favor of a new "Delphi" computer language version.[16] The Commission provided this Delphi version to Petitioners' staff in October of 2001. When Petitioners first ran the new Delphi model it produced substantially different results than the earlier edition of the model. Petitioners accordingly spent a great deal of time producing model results under the Delphi model and analyzing these differences. It was only on December 18, 2001, in the 2002 Order, that the Commission announced that the Delphi model would not be used. This decision rendered all of Petitioner's work moot and rendered the Notice even more incomplete than it would otherwise have been. It also prevented Petitioners from performing any valid work on line count changes in the time-frame necessary to comment on the Notice.

The Notice also did not discuss explicitly any of the problems that are described below in detail. For example, the Notice did not explain that by using ARMIS data the Commission would include 672 channels for each reported DS-3 line, even though the Commission's cost model does not even recognize the existence of DS-3 lines. Nor did the Notice explain that new line count totals would be combined with older but internally contradictory data for the purpose of assigning lines to wire centers. Nor did the Notice indicate that an implausibly large and rural distribution of special access lines would become an input to the 2002 model.

In this case, the Commission's original Notice was issued in a context implying a computer model that is materially different from the model finally adopted in the 2002 Order. The Notice failed to indicate the likelihood that the Commission would forego relevant data-gathering and, instead, rely upon a cobbled-together collection of pre-existing, but incompatible, data sets prepared for other purposes. Since the Notice failed to apprise affected parties of essential parts of the Commission's proposal, the 2002 Order itself "provide[d] the first opportunity for interested persons to offer comments that could persuade the agency to modify

[16] *Common Carrier Bureau Seeks Comment on Translation of Cost Model to Delphi Computer Language and Announces Posting of Updated Cost Model*, CC Docket No. 96-45, Public Notice (rel. June 20, 2001).

its rule."[17]

Thus the Commission should reconsider the 2002 Order. It should do so because the original Notice did not give adequate notice of unforeseeable adverse consequences. It should also do so because, as described below, the problems with the decision were in many important ways so serious that they warrant review, independent of Petitioners' right to present those arguments.

V. The Cost Model and Special Access Line Data Preparation Problems

The Commission uses the "Synthesis Model" to calculate forward-looking costs for each wire center in each study area owned by a nonrural carrier. Those results are also used to develop a national average cost that is the basis for a cost threshold. A nonrural carrier receives support if its state has a cost exceeding 135% of the national average. Therefore, Petitioners' support is dependent not only on model output costs for their own states, but equally on cost outputs for the nation as a whole, and hence for each other state, including states that do not receive support. For this reason, any error with input data or data processing affects Petitioners' support, even if it only arises from data for another study area or state that does not receive support.

In light of the Commissions failure to describe and address the data and model structure that the 2002 Order relies upon, it is difficult to discern all the reasons for its material deviations from past results. However, this Petition is primarily concerned with the data inputs and processing rules for "special access lines" used in the 2002 support calculation. Special access lines are included in the cost model because they can affect a wire center's average cost. All else being equal, the addition of special access lines to a wire center reduces the wire center's average cost. The special access line count data strongly affect support levels for 2002.

[17] *NECA v. FCC*, 253 F.3d 1, 16, quoting *Arizona & Public Service Co. v. EPA*, 211 F.3d 1280, 1299 (2000).

The 2002 support calculation used special access line count data from three sources:[18]

1. 43-08 Data. Most but not all nonrural carriers filed ARMIS results for 1999 (filed in April of 2000) and 2000 (filed in April of 2001). These reports included information on interstate special access line counts (4308 Data).

2. 1999 Data Request. Carriers filed switched and special access line counts by wire center, in response to a 1999 special purpose data request sent to carriers by the Accounting Policy Division (1999 Data Request).

3. PNR Data. AT&T and MCI provided customer location data to the commission. This data was based on 1996 customer location work done by "PNR," an independent contractor (PNR Data). The PNR Database reported customer locations for each wire center, together with a characterization of whether that location was for a business or residential line.

In the 2002 Order, to calculate 2002 support, the Commission combined these data sources in inappropriate ways. Key elements of these steps are *not* outlined in the Commission's Order, nor in the Notice. First, Commission staff performed preliminary processing on these data sources to prepare the input files for running the Synthesis Model for 2002 support. Then the Synthesis Model itself further processed the line counts. Petitioners understand that the FCC staff took the following steps with respect to special access:

1. Special access line count inputs were prepared.
   a. A total special access line count for each study area was taken from the 4308 Data.
   b. For each wire center, the relative share of total study area line counts (of both special access and state private lines) was obtained from the 1999 Data Request.
   c. The study area total from a. above was allocated using the shares from b. above to each wire center contained in the study area. The resulting output was a number of special access lines in each wire center that, when aggregated over the study area, approximately

[18] *See*, Order, para. 14.

matched the total in the 4308 Data.

2. The Synthesis Model itself was then run, using special access line counts by wire center from above as inputs.
   a. For each wire center, the model consulted PNR Data to determine whether the wire center had any business lines. If not, then the model set to zero the special access line count for that wire center.
   b. All special access lines discarded in step 2.a. above were reportedly (but perhaps not actually) reallocated to the remaining wire centers that did have business lines in the PNR Data.[19] The resulting output thus matched the "4308 data" special access line count total, but allocated only to wire centers with nonzero PNR business line counts.

VI. Problems With the Special Access Data

The 2002 Order does not clearly explain to the process leading to its results. However, our investigation, indicates that the 2002 support calculation are materially affected by unreliable and invalid special access line count data, by invalid combinations of data sets, and by invalid uses of the Synthesis Cost Model. The detailed reasons are listed below. The reasons are grouped first to describe problems with the *plausibility of the data* themselves (items 1 through 3 below), then problems with carriers' *collection* of the input data (items 4 through 6), then the the Commission's to *preprocess* method for these data (items 7 through 9), and finally problems related to *the Synthesis Cost Model* itself (items 10 through 12).

3. Implausible Special Access Counts in Petitioners' States. The special access data used by the Commission as inputs to the Synthesis Model are implausible and should have been rejected by any agency with expertise in telecommunications matters.

   a. The special access input data show implausibly large numbers of special access lines. In almost one-half of the wire centers in Maine, for example, the data used by the Commission for input to the model indicate more special

[19] This step was reported by FCC staff. As noted below, the outputs of actual model runs raise a question whether this step was actually taken.

access lines than business lines. This is highly implausible.

b. Moreover, those same input data show that special access lines are implausibly concentrated in the smallest, and most rural, wire centers. Again in Maine, Commission data show that wire centers with the highest concentration of special access are smaller, and hence more rural, wire centers. The details are shown in the following table, and are once again highly implausible.

Ratio of Special Access Lines To Business Lines in Maine	*Number of Wire Centers*	*Average Switched Lines for Wire Centers in Group*
1.5 or more	11	919
1.2 to 1.5	23	2,462
1.0 to 1.2	33	5,163
0.999 or less	69	6,677

4 Special Access Decreases Elsewhere. Data from companies other than Verizon reported decreases in the 2000 data year in "4308 Data" for special access lines. The Discrepancy between this result and Verizon's increases has not been adequately explained, is implausible on its face, and should be investigated by the Commission before being used to set the national average cost.

a. Qwest reported digital special access line decreases in 2000 that averaged 25 percent. Decreases were more than 30 percent in five Qwest states.

b. Numerous SBC states also showed decreases in digital special access line counts, with a reported decrease of 34 percent in Arkansas.

c. Petitioners have not been able to ascertain the reason for these decreases. However it is clear that these deviations from Verizon's results are not "real world" differences, but are, instead, more artifacts of survey instructions and practices. The Commission's Order fails to recognize, much less explain, these differences.

3. PNR Data. Some data in the PNR Database appear to be materially unreliable. In Maine, the PNR Data show a total absence of business lines in 30 percent of Verizon-Maine's 137 wire centers. According to proprietary information submitted to the Maine Public Utilities Commission, most of these wire centers actually do have some business lines. Petitioners do not know why the PNR Data contain these errors, but they clearly produce unreliable cost results for Maine, and presumably do so for other states.

4. Carrier Data Sources. Large Bell carriers appear to use a variety of data sources when constructing their "4308 Data" responses. Three underlying systems appear to have been used: CABS (carrier billing records), CRIS (customer records), and TIRKS (trunk inventory). Each, by itself, gives an incomplete picture of the total universe of special access lines; blending them compounds these errors.

a. CABS is a billing system that records facilities provided to other carriers. Absent additional data sources, a CABS-based 4308 report would omit all special access lines provided directly to retail customers. Verizon-North reports that it used the "CABS" (Carrier Access Billing System) records as the starting point for its "4308 Data" reports.

b. CRIS is a billing system that measures billing to retail customers. Absent additional data sources, a CRIS-based "4308 report" would omit special access lines that are provided and billed to carriers.

c. TIRKS is an engineering record system that, among other things, inventories trunks. Absent additional data sources, a TIRKS based response to "4308 Data" would omit those special access lines that do not use trunk facilities, but only use loop facilities. This could occur where an interexchange carrier has a Point of Presence in the same wire center where it obtains special access and therefore does not use a trunk. Petitioners believe, based on the best information available, that at least one other large carrier uses TIRKS as its source of "4308 Data".

To the extent that carriers used different methods to construct their 4308 Data, the resulting line counts are inconsistent, and distort support distributions. In circumstances where carriers have relied primarily on differing systems for "4308 Data report", the Commission needs to employ supplemental systems, as necessary to produce data consistent with other carriers. The 2002 Order provides no indication that the Commission has done this.

5. Carrier Measurement of Nodes and Channel Counts. Carriers apparently used different practices in counting special access lines for their "4308 Data" special access reports. Two particular issues are relevant.

   a. Nodes. The Commission gave carriers written detailed instructions for the 2000 ARMIS filings on how to report multi-termination special access circuits. The Commission instructed carriers to report the "number of connections to end user premises" (nodes). This variable is not, to Petitioners' knowledge, directly recorded in any Bell company database. To complete the 4308 Data reports, carriers had to analyze the termination points of each multi-termination special access circuit sold by the carrier and then apply Commission-supplied rules as to how those circuits should be counted.

   b. Channels. The Commission requires carriers to report digital special access circuits in "channels" or voice grade "DS-0" circuit equivalents. Using this method, a T-1 line would be reported as 24 channels. A T-3 line would be reported as 672 "channels."

As to both Nodes and Channels, Petitioners have determined that Verizon appears to have followed Commission instructions.[20] The Commission has not shown that other carriers also followed these instructions. Different practices among carriers produce highly unreliable and non-comparable data. Data indicates that the reporting

[20] The 2002 Order does not explain, and Verizon has not been able to provide an explanation why the growth of special access lines in Maine and Vermont is so much greater than in other Verizon study areas. Importantly, there is simply no evidence to suggest that it reflects any relevant "real-world" events.

methodology system for this material data element is not consistent across all carriers. Petitioners note that, in some regions of the country, the ratio of special access lines to business lines appears to be unexpectedly low, suggesting the use of significantly different methodologies in those areas. Such under-counting would substantially harm Petitioners by affecting the national average cost produced by the cost model. The Commission has not demonstrated that it has investigated these irregularities or evaluated whether the data reports, which it uses to allocate millions of dollars of support, are reliable.

6. Carrier Measurement of Private Lines. Carriers apparently have used different data sources in constructing their 4308 Data reports on special access line counts.

   a. Carriers were instructed to report in their 4308 Data reports on special access lines only lines connecting an end user's premises to an interexchange carrier point of presence and sold under either an interstate or intrastate special access tariff. They were explicitly told to exclude "local private lines provided by the local carrier which originate and terminate within the same LATA."[21]

   b. Some carriers, however, appear to actually have included private lines. The Commission has apparently recognized this problem on a future oriented basis, and a further amendment to 4308 instructions has been issued to clarify this point in the 2001 ARMIS reports due in April of 2002. That clarification, however, has not cured the problems in the 2000 data. The Commission needs to evaluate whether carriers improperly included private lines in their 4308 Data reports for 2000.

[21] Instructions were contained in the annual ARMIS instructions, instructions for Table III – Access Lines in Service by Customers, para. 1.

7. Combining Data Bases – Private Lines. The 4308 Data and the 1999 Data Request did not treat private lines the same way. Therefore the 1999 Data Request should not have been used to allocate the 4308 Data.[22] The resulting cost calculations therefore are invalid and unreliable.

   a. As noted above, the FCC instructed carriers not to include private lines in their 4308 special access reports. Many carriers, including Verizon, complied with this requirement.

   b. The 1999 Data Request included all state private lines. Thus the reported data included items such as "barn lines" that are used to connect farm barns with the farmhouse. It also probably included alarm circuits that are not voice grade circuits. Based on Petitioners' experience, barn lines and alarm circuits are widely distributed in rural areas. Special access circuits, however, are usually sold to large business customers, often in larger towns and cities.

   c. In the 2002 support calculation, the Commission has used the 1999 Data Request data to allocate 4308 special access line counts to wire centers, even though the two data sources are not comparable. As a result, it is highly likely that the Commission has assigned too many special access lines to rural areas that in reality have only barn lines and alarm circuits. This reduces the accuracy of the calculated average loop, switching and transport costs in that study area.

8. Combining Data Bases – Channel Counts. The 4308 Data for 2000 defined "channel counts" in a way that was incompatible with the 1999 Data Request. Therefore the 1999 Data Request should not have been used to allocate the 4308

[22] Verizon made a similar comment in this proceeding, and the 2002 Order rejected that comment (footnote 40) on grounds that it required a platform change which the Commission wished to defer. If the Commission wishes to defer the necessary platform change, it should also freeze existing support levels, thus "deferring" the adverse affects of the recognizable error of combining incompatible data sets.

Data totals. The resulting cost calculations therefore are invalid and unreliable.

a. Petitioners understand that some carriers used the same definitions for "facility" and "channel," in both their 1999 4308 Data report and in their 1999 Data Request. That is, their channel counts were equal to their facility counts.

b. For the 2000 report of 4308 Data, the Commission clarified instructions concerning channel counting. For example, each DS-3 line would count as 672 channels. Verizon made this change in 2000; it is not clear whether other carriers did.

c. Where a carrier did not properly count channels in its 1999 Data Request, it is not valid to use the 1999 Data Request to allocate total lines derived from the 4308 Data for 2000. Without a revised 1999 Data Request channel count consistent with the new rules, the unrevised 1999 Data Request should not have been used to allocate the 4308 Data for 2000.

9. Combining Data Bases – Nodes. The Commission defined the rules for reporting multi-termination special access circuits for the 2000 4308 Data. This was not, however, compatible with the 1999 Data Request. Therefore the 1999 Data Request should not have been used to allocate the 4308 Data totals. The resulting cost calculations therefore are invalid and unreliable.

a. Some carriers used the same counts for multi-termination special access circuits for both their 1999 4308 Data report and their 1999 Data Request. Those carriers reported a multi-termination access circuit, regardless of the number of its branches, as one connection.

b. As described above, for the 2000 4308 Data report, the Commission determined that carriers should use a new method to calculate multi-termination special access circuits. The new method substantially increased reported special access circuits for Verizon in 2000.

c. However, the 1999 Data Request for Verizon and other carriers had been prepared using the older method. The older method produced substantially lower special access

line counts and probably distributed those lines to substantially different wire centers.[23] Thus it is not valid to use the 1999 Data Request to allocate total lines derived from the 4308 Data for 2000. Without a revised submission consistent with the new rules, the 1999 Data Request should not have been used to allocate the 4308 Data for 2000.

d. Verizon did "revise" its 1999 Data Request response, but that filing simply perpetuated and multiplied (literally) errors in the contents of Verizon's 2000 4308 Data. *Verizon's revised filing was not a corrected version of the original filing using measured data and new 4308 Data definitions. Rather, the filing was simply a scaling up of the original report. Both the revised facility counts and the revised channel counts were simply a multiple of the originally filed 1999 channel counts.*[24] For that reason, the new filing added nothing to the validity of the 1999 Data Request for present purposes. The corrected and uncorrected channel counts are mathematically equivalent for present purposes since each allocated the same fraction of the study area total lines to each wire center. Verizon thus remains in the same condition as any other carrier that never filed a revised 1999 Data Request report; and Verizon's wire center allocations from the 1999 Data Request are not reliable indicators of the location of special

[23] Verizon reported to Petitioners that its 2000 4308 Data report for Vermont was 63,744 special access lines. Under the previous method, it would have reported 25,200 lines. Similarly, for Maine the new method produced 154,752 lines, while the old method would have produced 46,776 lines. Clearly, the differences are due to artificial "definitional" changes, not to "real-world" matters relevent to the Commission's duty to allocate Section 254(b) support.

[24] The multiplication factors varied by state. For example, in every wire center in Maine, the revised facility count was 1.7582 times the original channel count. In addition, the revised channel count was 4.1088 times the original channel count. It was clearly unreasonable for Verizon to file, and the Commission to accept, revised facility counts that are simply unjustified scalar mark-ups of the original channel counts.

access lines. This fact alone renders the 2002 Order vulnerable to appellate remand and, thus, should be a basis for granting the relief sought by Petitioners. The same problem may also apply to Verizon's channel counts, discussed in paragraph 8 above.

10. Synthesis Model -- PNR Data. Petitioners noted above that some of the PNR data appears to be materially unreliable since it pretends that many wire centers have zero business lines. The Synthesis Model compounds errors of this type. It uses the same PNR Data to decide whether a wire center's special access line count will be set to zero. If the PNR data show zero business lines, the model assigns zero special access. As a result, model output is clearly unreliable in Maine. If, as seems likely, similar problems exist in other states, the entire support calculation for 2002 is materially in error.

11. Synthesis Model – DS-3 Lines. The 4308 Data for 2000 included DS-3 lines as special access lines. This is explicitly incompatible with the Synthesis Model, which was not designed to accept DS-3 input data. The resulting cost calculations are therefore unreliable.

a. In the Tenth Report and Order, the Commission explained how the Synthesis Model deploys facilities for special access lines.[25] For each wire center, the model takes a single input: the total number of special access channels in that wire center. The model then divides this total into a DS-1 portion and a DS-0 portion. The ratios assigned to DS-1 are uniform nationwide: 91.75 percent of the special access lines are allocated to the DS-1 portion and 8.25 percent are allocated to the DS-0 portion.[26]

b. The DS-0 portion is deployed using traditional two-wire circuits. Each DS-1 line, however, has 24 DS-0 voice grade equivalents, and the Synthesis Model deploys this

[25] *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, *Forward-Looking Mechanism for High Cost Support for Non-Rural LECs*, CC Docket No. 97-160, Tenth Report and Order, FCC Rcd 20156, para. 100 (1999) (*Tenth Report and Order*) (subsequent history omitted).

[26] This number is found in the computer files associated with the Synthesis Model. See file "hcpm_inputs_June2001.xls" on page "feeddist" in cell B22.

line using a four-wire copper loop.[27] In other words, for the DS-1 portion of special access, the model assigns one pair of copper wires for 12 digital channels.

[27] *Id.*, cells B23, B24.

c. The Synthesis Model does not recognize the existence of DS-2 or DS-3 circuits, nor does it deploy DS-2 or DS-3 facilities.[28]

d. The 2000 4308 Data reports included DS-3 circuits. For each DS-3 circuit, the model input data therefore included 672 "channels." As described above, the model divides the total channel count into a DS-1 and a DS-0 component. The model thus presumed that 91.75 percent of these channels, or approximately 617 channels, consisted of DS-1 circuits operating at a 12 channels per wire pair. It also assumed that 8.25 percent, or 55 lines, consisted of DS-0 circuits. Thus each DS-3 reported in the input data was treated by the Synthesis Model as 25.7 DS-1 circuits plus 55 DS-0 circuits.

e. The commission has never found (nor is it ever likely to find) that the cost of a single DS-3 circuit should be deemed to be the same as the cost of 25.7 DS-1 circuits plus 55 DS-0 circuits. The costs will not be equal; if they were, there would be no advantage to purchasing a DS-3 circuit. Therefore the model's cost calculations are unreliable wherever a carrier has reported the existence of one or more DS-3 circuits, and the nationwide average cost is unreliable.

f. The Commission's algorithm for distributing special access lines using the 1999 Data Request adds further errors. Because of the content of the 1999 Data Request, it appears that the Commission has improperly placed too many of these DS-3 circuits in rural areas. This could explain the rural bias discussed above for Maine's special access circuits.

g. Sales of DS-3 circuits have proliferated in recent years. DS-3 circuits are now frequently purchased by large customers and by Interexchange carriers. For that reason and because a single DS-3 contains 672 channels, the 2002 Order's treatment of DS-3 sales is probably creating a significant distortion in the 2002 universal service allocations. This problem will assume increased importance in coming years.

[28] *Id.* footnote 242.

12. Synthesis Model – Line Count Variations. The Synthesis Model outputs report special access line counts for many wire centers that, for unexplained reasons, differ from special access inputs.

a. In wire centers where no business locations appeared in the PNR Data base, the model is expected to assign zero special access lines to that wire center. The model is then expected to reallocate those deleted lines proportionally to other wire centers that do have business lines in the PNR Database. This is one of many "true up" subroutines used for model data. However, Petitioners' examination of the model's inputs and outputs suggests that these unassigned lines may simply have been discarded by the model. The resulting study area line counts thus undercount the 4308 Data special access totals by varying amounts.[29] This will make cost results unreliable. It also suggests that neither Commission staff nor the 2002 Order and its accompanying material adequately and accurately comprehend the actual practice and operation of the model that the 2002 Order relies upon.

b. Petitioners have examined the model output line counts for Maine and Vermont. In most cases the expected wire center count differs by the actual result by a few lines, but in ways that have not been explained by the Commission's orders nor informally by its staff.[30] Moreover, in at least one case in Maine the unexplained difference is much larger. In Mechanics Falls Maine, the difference is over

[29] For Maine, the model input shows 153,615 special access lines. The output file shows 142,211. Therefore 11,404 lines appear to have been discarded for reasons that the 2002 Order has not addressed.

[30] One might suppose that the differences are the result of the reassignment of the discarded lines discussed in the previous footnote. However, this does not appear to be the case. If it were the case, switched line count outputs would always be larger than inputs. In approximately one-half of the cases, however, the reverse is true, and output line counts are smaller than input line counts, usually by one to four lines. This eliminates as a possible explanation that the differences are due to reentry of previously deleted special access lines.

three hundred lines. Nearly three-quarters of the special access lines and two-thirds of the business lines shown in the input file had disappeared from the output file. These unexpected differences in output line counts undermine the reliability of the resulting cost calculations.

VII. Next Steps In Solutions

The special access line count data have a substantial effect on cost calculations and thus on support distributions in 2002. Yet, for numerous reasons, the 2002 Orders' results are materially erroneous. Many of the problems arise from the fact that the measurement technique was very indirect. The Commission did not send out a targeted data request designed to elicit the data it needed to run the Synthesis Model. Rather, the Commission combined ARMIS data and two other, inconsistent data sets that it had on hand.[31] Unfortunately, the data themselves were developed for other, quite different, purposes and were unreliable and invalid in important ways, at least for the purposes to which the 2002 Order applied the data. Further, they were combined and used in the cost model in ways that produced internal inconsistencies. As a result, the 2002 support calculations are not reliable.

The immediate problem is the use of data, primarily from ARMIS, that were not verified and that were never designed to carry a burden such as the calculation of hundreds of millions of dollars of universal service support. The model itself is also partially at fault since the Commission designed it to accept as input only a single special access "channel" count. With the new special access data that includes DS-3 equivalent channels, the model creates new and spurious line data for every wire center. Thus the model's sole special access input is driven by the sale of broadband DS-3 lines to large customers, usually in densely populated areas.

[31] We discuss here the use of ARMIS reports to develop special access line counts. ARMIS data were used pervasively, however, in designing the model. For example, ARMIS data were used to "true up" the original PNR line count data. *Tenth Report and Order*, para. 61. Also, general support facilities and plant specific operations expense ratios were derived from ARMIS data. *Tenth Report and Order*, paras. 17, 341.

At its heart, based on this input, the model produces allocations that would be just only if America's telecommunications market had suddenly gone mad for barn lines and rural alarm circuits. The model then re-labels rural voice-grade facilities to accommodate its self-generated perception of this new demand. In reality, of course, no such thing has happened. In most cases, Verizon constructs separate broadband facilities for DS-3 services. Thus the cost and the need to support narrowband services funded by the USF are unaffected by the additional broadband DS-3 special access circuits. Unfortunately, in the 2002 Order, the Commission is moving millions of dollars of support from one place to another, notwithstanding this and numerous other problems with data reliability and validity, with invalid combinations of data sets, and with invalid inputs for (and likely malfunctioning of) the Synthesis Cost Model. Overall, reducing support for rural customers due to the model's self-perceived presence of increased DS-3 special access lines is simply inconsistent with the Commission's Section 254(b) obligations. The Commission might elect to repair these problems. To adopt this strategy successfully, the Commission would need to undertake at least two things. First, it would need to issue a new and recurring data request to carriers, and it would need to verify the responses. Such a data request could take the simple step of directly requesting line counts by wire center. It would also need to clarify: 1) consistent counting of private lines; 2) consistent counting of multi-node special access circuits; and 3) consistent reporting of DS-0, DS-1, DS-2 and DS-3 digital circuits.[32] Second, the Commission would need to consider changes to the model itself, or at the very least to exclude all data input derived from DS-2 and DS-3 circuits. This "fix-it" strategy would require significant effort by the Commission and significant modifications to the model inputs, or possibly the model itself.

A preferable strategy would be to maintain the status quo and look for a better long-term alternative. Specifically, the Commission could take the support calculations back to an earlier year, such as 2000, when more direct data sources were used. The Commission then could keep support levels constant while it develops a new long-term approach. The need to develop such a

[32] Although this question was decided in the *Tenth Report and Order*, the Commission should also direct that separate data be submitted for DS-0 and DS-1 lines, because not all wire centers are likely to have the same ratio of DS-0 to DS-1 lines. Finally, any effort to update input data for the model should include updating customer locations since the current data is based upon 1996 line counts (or earlier) and thus is more than five years old

different approach has already been suggested by several of the Commission's orders,[33] and some related work is already underway.[34]

A broader view suggests that the Commission's Synthesis Model for nonrural carriers is too reliant upon inputs of data that is often erroneous and, if accurate for other purposes often irrelevant to Section 254(b)'s goals. The Commission has suggested that it may move away from some of the current ARMIS reporting requirements. The problems described here suggest that the Commission can and should undertake to design a new system that is not dependent upon annually filed company-specific ARMIS data or even data request filings but rather upon extrinsic data. For example, the Commission could rely upon data that is *stable, reliable, and relevant,* such as customers-per-route-mile, terrain, climate and other geographic factors. Design of such a model would require the collection of reliable and verifiable inputs from carriers, but *only once*. With that updated data in hand, the Commission could develop a system of high cost support that would be relatively stable, capture significant systemic differences among states, and justly allocate a reasonable level of support. It could also avoid the false precision of the current system in which the support available to high-cost states is at the mercy of unverifiable data and unfathomable models. In the mean time, however, the Commission should not reduce Petitioners' support based upon unreliable and invalid data and processes.

VIII. Relief

The 2002 support calculations are based upon use of unreliable and invalid data, invalid combinations of data sets, and invalid input data for the Synthesis Cost Model. For these reasons, the Commission should not rely upon them to change existing allocations and should, instead, cancel support reductions scheduled for 2002. Specifically, the Commission should

[33] The Commission has already announced that it will ask the Joint Board to examine the differences between the existing rural and nonrural systems.

[34] The Commission recently referred to the Joint Board the several broad issues raised by the Tenth Circuit's decision issued on July 31, 2001.

order that carriers should receive in 2002 the greater of the amount already published for 2002 or the amount actually distributed in 2000, the last year before these problems arose. In this way, states that have been advised to expect an increase in 2002 will not be disappointed. Likewise, invalid calculations and data should be not used to reduce support to states that are entitled to the current support levels, because of the Commission's Section 254(b) obligations to keep rural rates affordable and reasonably comparable to those in urban areas.

Respectfully submitted,

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